FORT WORTH®
WATER

BIOSOLIDS MANAGEMENT PROGRAM & ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

ANNUAL PERFORMANCE REPORT
2012-2013

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NATIONAL BIOSOLIDS PARTNERSHIP
ENVIRONMENTAL MANAGEMENT SYSTEM
CERTIFIED PROGRAM

2012-2013

City of Fort Worth, Texas
Water Department
Village Creek Water Reclamation Facility
Biosolids Management Program and EMS Performance Report

Contents

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INTRODUCTION

During the past year (August 1st, 2012-July 31st, 2013), the City of Fort Worth's Water Department beneficially reused/recycled 98% of its Class A, Exceptional Quality (EQ) biosolids. Biosolids were land applied on thousands of acres of farmland and ranchland in the North Texas area. This is the twenty-second (22st) consecutive year that the City of Fort Worth has operated a biosolids land application program.

The biosolids program is a public/private partnership where the contractor, Renda Environmental, Inc. (REI), is responsible for processing, dewatering, transporting and performing beneficial land application of biosolids produced from the Village Creek Water Reclamation Facility. REI is under contract to provide these services until March 31, 2015.

Biosolids EMS Certification

In July 2005, the Fort Worth Biosolids Program obtained national certification from the National Biosolids Partnership (NBP) for their establishment and operation of an Environmental Management System (EMS). To obtain this certification, the Fort Worth Biosolids Program underwent a thorough evaluation and audit of their EMS practices and processes. The audit was conducted by both internal auditors and "EMS certified" third party auditors.

One year later (July 2006), the Fort Worth Biosolids EMS Program successfully underwent internal and external audits and met requirements to maintain EMS certification and obtained the "Biosolids EMS – Tier 4 Platinum Certification" which "*represents the highest achievement in biosolids management and environmental stewardship recognized by the Water Environment Federation (WEF), National Association of Clean Water Agencies (NACWA), and the United States Environmental Protection Agency (EPA*)."

Biosolids EMS Verification

In October 2010, the Fort Worth Biosolids program was recertified by the National Biosolids Partnership. This was accomplished in a multi-day third party audit.

Annual Performance Report

One of the requirements of the EMS Program (Element 15) is to provide an EMS Annual Performance Report (APR) outlining biosolids activities and operations during the previous year. This information is then made available to all interested parties.

This APR summarizes Fort Worth's biosolids management program performance, biosolids production and reuse, goals and objectives, EMS activities, public outreach, and the commitment towards continual improvement. This report and other biosolids information on operations and activities are detailed on the website, listed below.

http://fortworthtexas.gov/water/info/default.aspx?id=6102&ekmensel=73b29971_1308_2386_6102_4

SECTION 1: BIOSOLIDS MANAGEMENT PROGRAM

Annual Biosolids Report Period:	August 1st, 2012 to July 31st, 2013
Registration/Permit Number:	TPDES #10494-013
Class A Authorization Facility No.:	#720001
Transporter No.:	TCEQ--#21942 (Renda Environmental, Inc.)
	TXDOT--#45267C (Renda Environmental, Inc.)
Amount of biosolids beneficially reused/recycled:	31,297.35 dry tons (without lime)/year
Amount of biosolids beneficially reused/recycled:	28,392.96 dry metric tons (without lime)/year
Percentage of biosolids beneficially reused/recycled:	98.35%
Type of biosolids produced:	Class A, Exceptional Quality (EQ)

Biosolids Production

The City of Fort Worth produces biosolids at the Village Creek water Reclamation Facility (VC). During 2012-2013 VC produced 31,297.35 dry tons (without lime) of biosolids. Due to concerns regarding odor issues, 515.65 dry tons were landfilled (1.65% of total dry tons produced-without lime).

The Fort Worth Biosolids Beneficial Reuse/Recycling Program continues to produce environmentally safe Class A, EQ biosolids for land application purposes.

The biosolids that VC produces are anaerobically digested and dewatered by belt filter press to produce a cake product that is 20% to 23% solids.

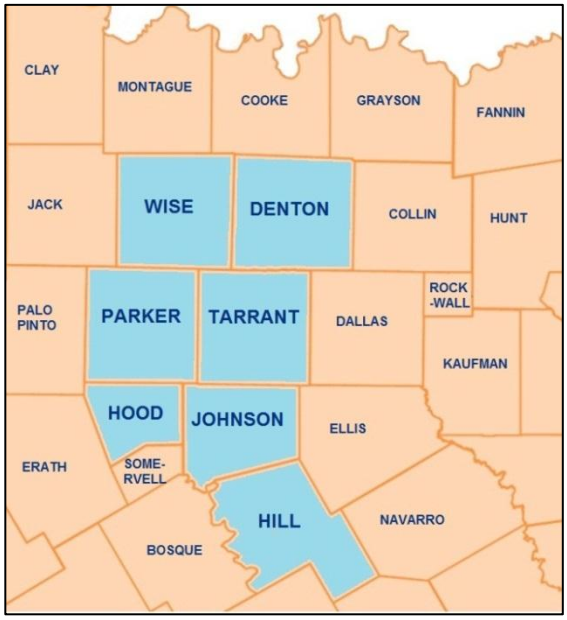
Post-lime stabilization is performed after dewatering in order to meet VC's TPDES permit requirements for vector attraction reduction. The biosolids are then land applied by Renda Environmental, Inc.; the City's contractor.

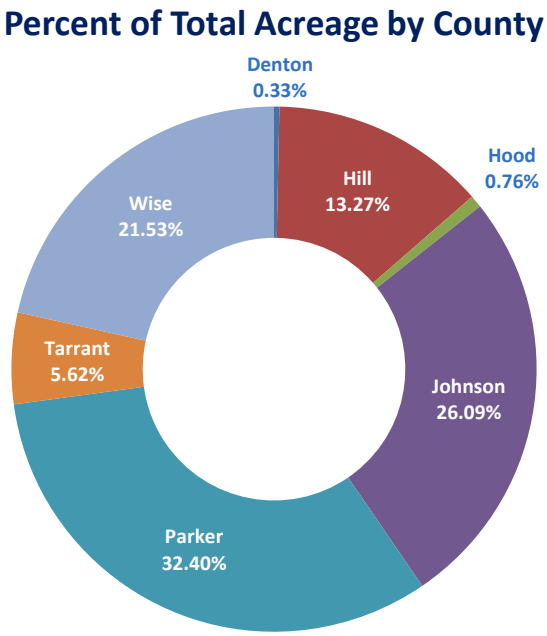
Beneficial Reuse Options and Management Practices

Biosolids produced at VC were properly processed, monitored, and agronomically land applied to thousands of acres of farm and pasture land in Tarrant and six surrounding counties in the North Texas area. The biosolids act as an excellent soil amendment and add to the nutrient value to crops and grasses.

SECTION 1: BIOSOLIDS MANAGEMENT PROGRAM (CONT.)

The map and table below show landowner participation by county in the Fort Worth Beneficial Reuse/Recycling Program.





BIOSOLIDS APPLICATION: AMOUNTS BY COUNTY

Counties	Landowners	Noticed Sites	Total Acreage	(%) of total acreage	Tons Applied (Includes lime) Aug 2012-Jul 2013
Denton	1	1	125	0.33%	-----
Hill	8	20	5101	13.27%	10608.44
Hood	2	2	291	0.76%	-----
Johnson	14	28	10033	26.10%	7438.68
Parker	5	5	12459	32.41%	3210.3
Tarrant	4	4	2162	5.62%	4254.82
Wise	10	13	8276	21.53%	8896.87
TOTAL	**44**	**73**	**38447**	**100%**	**34409.11**

SECTION 1: BIOSOLIDS MANAEMENT PROGRAM (CONT.)

Contractor Performance

Biosolids operations in Fort Worth are handled by Renda Environmental, Inc. (REI), a contractor for the City.

REI is responsible for:

- operation of the dewatering facility and further processing of the biosolids by belt-filter press dewatering,
- stabilization by lime addition,
- transportation, and
- land application to beneficially reuse the biosolids produced at VC.

REI is in compliance with all local, state, and federal requirements. REI operates and maintains the belt filter presses and all auxiliary equipment and continually monitors and tracks the amount of biosolids applied to each land application site. REI has been proactive in seeking input on biosolids transportation and operations by establishing a telephone number (817.571.9852) for the general public. This number has been placed on all trucks and equipment used to transport and spread biosolids. REI conducts tours of the biosolids dewatering facility and the application sites when requested.

City Oversight/Inspections

City personnel perform periodic unannounced visits and inspections to the dewatering facility and land application sites to ensure that the contractor is following best biosolids management practices concerning biosolids dewatering, transportation and land application.

While a site is undergoing land application, City personnel will perform a site inspection detailing weather conditions, truck conditions, haul road conditions, and overall site conditions. In July 2013, the City obtained an olfactometer to help quantify odors and establish an odor monitoring history at the land application sites.

When a land application site reaches completion, a final close-out visit is conducted by City personnel. This final site visit is performed to ensure that all biosolids material has been properly applied and all equipment has been removed.

Monitoring and Measurement

By City contract, REI uses an independent certified laboratory to analyze the biosolids produced at VC.

Samples of biosolids are taken from the process areas and analyzed for fecal coliform, pathogens, metals, PCBs, pH, percent solids, and vector attraction reduction. Sampling frequency is established by the contract; which includes federal, state, and local regulatory reporting requirements and can be found summarized in the table on the next page.

SECTION 1: BIOSOLIDS MANAGEMENT PROGRAM (CONT.)

TPDES CLASS A BIOSOLIDS MONITORING METHODS AND FREQUENCY	
Pathogen Reduction	30 TAC 312.82 (a) Alternative 4 • Fecal Coliform Density <1000 MPN* • Enteric Virus Density <1 Plaque-forming unit per 4 gram total solids** • Viable Helminth Ova Density <1 per 4 grams total solids**
Vector Attraction Reduction	30 TAC 312.83 (b) (1-8) Alternative 6 • pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two hours and then remain at a pH of 11.5 or higher for an additional 22 hours
Monitored Item	*Frequency*
Fecal Coliform	Two (2) times per month
Pathogens	Two (2) times per month
Metals	Monthly
PCBs	Monthly
TCLP	Two (2) times per year
pH (Vector Attraction Reduction)	Operation Process-Daily; Regulatory Compliance Weekly
% Solids	Daily

**** Most Probable Number***

***** Dry Weight Basis***

Biosolids samples are analyzed monthly for metals and polychlorinated biphenyls (PCBs). For 2012-2013, all metal concentrations were significantly below Table 1 ceiling concentration limits and Table 3 pollutant concentrations as required by 40 CFR 503 and 30 TAC 312, for the use or disposal of sewage sludge. The metals and PCB concentrations are shown in the following table.

SECTION 1: BIOSOLIDS MANAGAMENT PROGRAM (CONT.)

METAL AND PCB CONCENTRATION (REPORTED IN MG/KG DRY WEIGHT BASIS)

Year 2012-2013	As mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Pb mg/kg	Hg mg/kg	Mo mg/kg	Ni mg/kg	Se mg/kg	Zn mg/kg	PCB mg/kg
NPDES Permit Limits (Table 1)	*75*	*85*	*3000*	*4300*	*840*	*57*	*75*	*420*	*100*	*7500*	*n/a*
NPDES Permit Limits (Table 3)	*41*	*39*	*1200*	*1500*	*300*	*17*	*****	*420*	*36*	*2800*	*n/a*
August	14.50	1.86	36.70	401.00	28.10	0.32	12.60	28.60	2.62	475	0.00
September	16.60	1.46	38.60	433.00	26.20	1.19	16.60	28.00	2.07	554	0.00
October	10.40	1.62	34.60	388.00	24.50	0.40	12.90	30.80	6.51	503	0.00
November	15.90	1.30	46.40	482.00	32.70	0.37	16.10	38.70	5.00	643	0.00
December	11.50	0.68	40.40	450.00	24.60	0.33	14.20	31.80	3.90	539	0.00
January	11.30	0.77	49.70	448.00	25.90	0.32	13.60	29.20	0.00	567	0.00
February	9.00	0.58	34.70	402.00	22.70	0.44	10.20	22.70	3.40	511	0.00
March	7.40	1.00	43.10	479.00	27.50	0.45	13.60	29.00	3.50	630	0.00
April	6.10	1.30	44.60	465.00	27.40	0.48	13.80	32.10	0.00	630	0.00
May	6.60	1.40	36.90	541.00	31.20	0.41	14.90	32.20	6.40	709	0.00
June	3.10	1.20	37.30	498.00	24.10	0.34	15.30	36.40	7.10	627	0.00
July	7.80	1.40	36.30	457.00	29.00	0.31	14.90	37.20	7.50	863	0.00
Yearly Avg. Metals Conc.	**10.02**	**1.21**	**39.94**	**453.67**	**26.99**	**0.45**	**14.06**	**31.39**	**4.00**	**604**	**ND**
Highest Monthly Conc.	**16.60**	**1.86**	**49.70**	**541.00**	**32.70**	**1.19**	**16.60**	**38.70**	**7.50**	**863**	ND

*****No limit established by federal regulations**

Pathogen Requirement Achieved: Class A
Pathogen Reduction Alternative Used: 4
Vector Attraction Reduction Alternative Used: 6

In addition, the City and REI collect biosolids samples which then undergo TCLP (Toxicity characteristic Leaching Procedure) analysis. Two TCLP samples were collected during the 2012-2013 reporting year. All samples were compliant with TCLP standards.

SECTION 2: ENVIRONMENTAL MANAGEMENT SYSTEM (EMS) PERFORMANCE

Summary

***Environmental Management System (EMS)*:** The biosolids EMS is a systematic approach that helps the City to continually improve activities that are associated with environmental performance. The National Biosolids Partnership (NBP) sets standards and guidelines that the City's EMS must achieve in order to receive and maintain NBP certification. A properly implemented EMS assists the City's Biosolids Program with the following:

- Identifying the overall goals and objectives of the Biosolids Program
- Creating a series of management practices to meet the goals and objectives
- Managing biosolids and monitoring and measuring the effectiveness of the program
- Taking corrective and preventative measures if the management practices are not operating correctly
- Conducting audits of the Biosolids EMS Program
- Requiring management involvement to make changes to the program as needed

On July 20, 2005, the City of Fort Worth Village Creek Water Reclamation Facility received NBP EMS certification. ***This made the City of Fort Worth the 7th agency in the United States and the 1st agency in Texas to receive this certification.***

***National Biosolids Partnership*:** The National Biosolids Partnership is a voluntary partnership between the National Association of Clean Water Agencies (NACWA) and Water Environment Federation (WEF). NBP is committed to developing and advancing environmentally sound and sustainable biosolids best management practices through comprehensive management systems.

The mission of the NBP is to advance the understanding and adoption of effective practices in biosolids management and offer:

- Education and training;
- Technical assistance;
- An information clearinghouse; and
- An EMS-based third-party certification program for biosolids management systems.

SECTION 2: ENVIRONMENTAL MANAGEMENT (EMS) SYSTEM PERFORMANCE (CONT.)

Timeline

The EMS book was updated periodically throughout the reporting year, with several changes made in August 2013. The following table indicates additional biosolids EMS activities conducted during the past year.

2012-2013 EMS Activities	Date
EMS Management Review	October 9, 2012
EMS Performance Report	October 10, 2013

Goals and Objectives

The City has established goals and objectives for biosolids management and the EMS. The list of goals and objectives as shown in the EMS manual are included in "Appendix B: Goals and Objectives" of this report. Appendix B also shows the cost savings attributable to specific goals. Upon completion of these goals the City expects to decrease the purchased fuel for the VCWRF by at least 13,000,000 kWh/yr. These goals were updated October 10, 2013.

Support

Contractor: REI is fully committed in partnering with the City of Fort Worth in the continued improvement of the Fort Worth Biosolids EMS Program.

City: The Village Creek WRF personnel continue to support the EMS Program and take "ownership" in the EMS process by updating and establishing new plant Standard Operating Procedures in order to conform to EMS requirements and audit purposes.

Corrective Action Notices (CANs)

As defined in EMS Element 14, Corrective Actions are "specific actions and steps taken to correct an organization's nonconformance(s) to environmental policies, procedures, and other requirements, and to mitigate any residual impacts to the environment." It is the policy of the Fort Worth Biosolids EMS Program to create a CAN for an identified nonconformance as well as, identified opportunities for improvement. See Appendix A for a full listing of the Corrective Action Notices for August 2012-July 2013.

SECTION 3: LEGAL REQUIREMENTS

The Village Creek Water Reclamation Facility permit to discharge wastes (WQ0010494013) was authorized by the TCEQ and was issued on December 29, 2011.

To find out more information on biosolids rules, regulations and requirements, visit the Secretary of State's website and view the Texas Administrative Code for 30 TAC 312 which details Sludge (Biosolids) Use, Disposal and Transportation :
http://info.sos.state.tx.us/pls/pub/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=312

In addition, a summary of regulations applicable to the VC Biosolids program that exists in the EMS manual can be found on the City's website:
http://fortworthtexas.gov/uploadedFiles/Water/Wastewater/Biosolids/Element%20No.%204%20-%20Legal%20Procedure.pdf

SECTION 4: SPILLS, EMERGENCY ACTIONS, AND RESPONSE

More than 780,000 miles were driven this past year in transporting biosolids to numerous land application sites without a major biosolids spill.

Emergency Response Plans: the City and REI continued to review and modify as necessary existing SOPs, check lists and operational changes pertaining to emergency response plans. An updated in-plant SOP was created in June 2011 with specific areas devoted to sludge/solids spills at VC.

SECTION 5: PUBLIC OUTREACH AND PARTICIPATION PROGRAM

A main component of the City's EMS is to further develop and expand public outreach and public participation programs. The City and REI continued to reach out and inform the general public on biosolids, biosolids processing, biosolids stabilization, land application, biosolids fertilization, and the development of an EMS using best management practices for the Fort Worth Biosolids Program.

The Biosolids EMS' public outreach and participation include the following:

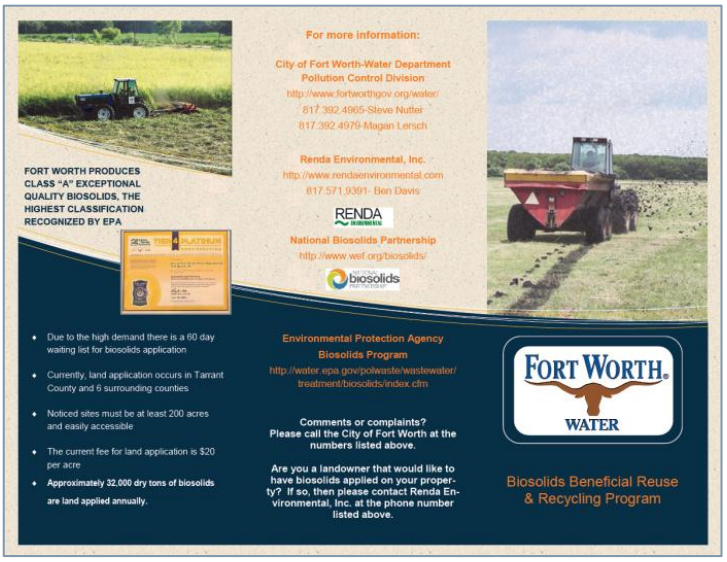
Website: The biosolids EMS website is periodically updated on the City's internet site to promote information sharing and opportunities for public input and feedback in a timely manner. The website includes links to various audit reports, annual performance reports, and the elements of the Biosolids EMS Manual.

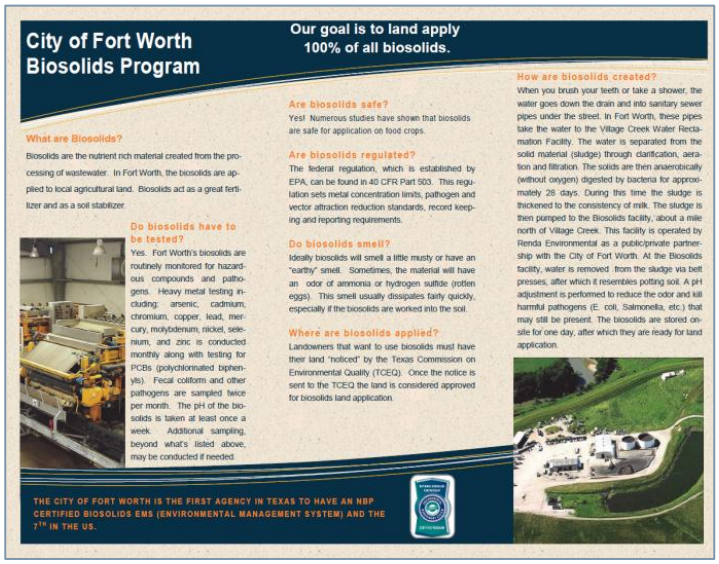
Tours: The City and REI conduct tours of the Village Creek WRF and the Dewatering Facility. In 2012-2013, thirty four (34) plant tours were conducted. In all, 1067 individuals visited and toured the plant facilities. During the tours, visitors are shown a presentation that includes information on the biosolids program. Three city representatives from a nearby municipality received a tour of the Dewatering Facility to better understand our biosolids operations due to land application activities in their area. The benefits of Class A biosolids were discussed and VC and REI received positive feedback on the overall biosolids operation and program.

Notification of Land Application Activities: In an effort to be proactive, City personnel notify county officials of land application activities in their precinct. This gives opportunities for county officials to ask questions about biosolids and land application should they have any.

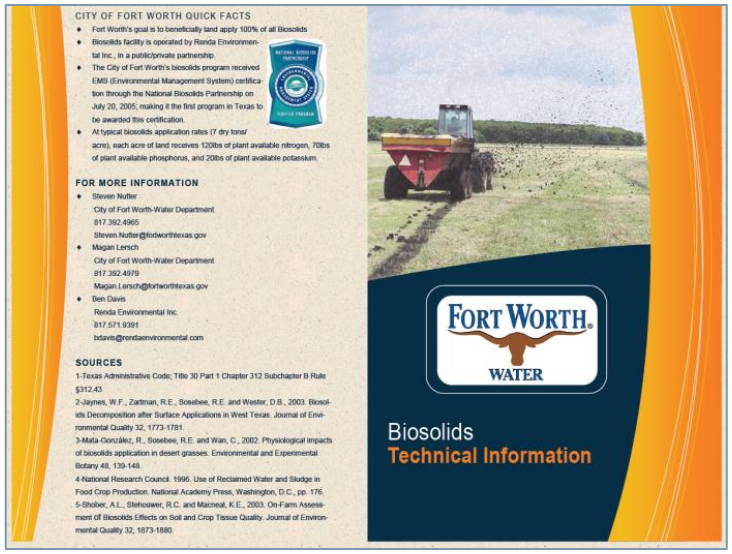
SECTION 2: ENVIRONMENTAL MANAGEMENT (EMS) SYSTEM PERFORMANCE (CONT.)

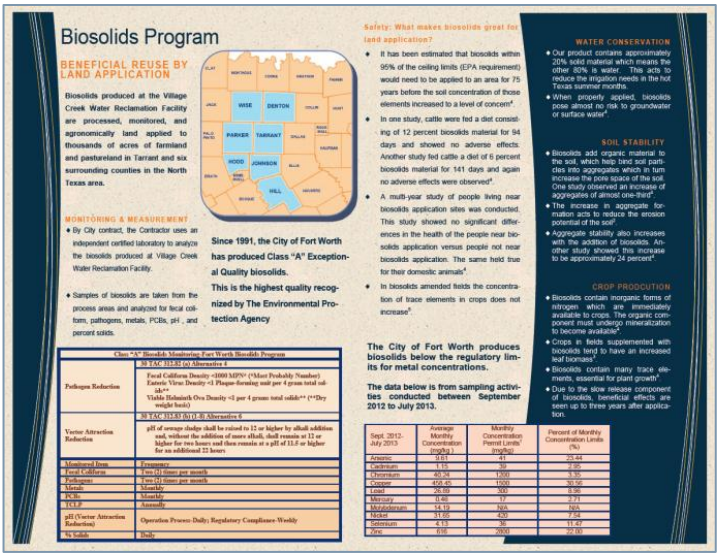
Publications: The City has two biosolids brochures; one brochure gives basic biosolids and program information, the other brochure gives technical information which includes monitoring and measurement details. These brochures are available to the public during facility tours, at all presentations, and on the City's biosolids website. The brochures were updated in August 2013.





General Brochure





Technical Brochure

SECTION 6: FUTURE PLANS/ADVANCES IN BIOSOLIDS TECHNOLGY

Landia Air Jet

Landia Air Jet System: In an effort to mitigate odors from biosolids production, a Landia Air Jet system was installed on a 500,000 gallon sludge holding tank at the Dewatering Facility. The Landia Air Jet aerates the sludge stopping the anaerobic process and thus killing off anaerobes responsible for bad odors.

Odor Control Study: In July 2013, Village Creek began an odor control study. At its completion, factors attributable to bad odors within biosolids production will have been examined and evaluated in an effort to mitigate odors at the land application sites.

Olfactometer: In July 2013, Village Creek purchased an olfactometer in order to assess odors at the land application sites. This instrument allows for quantification of odors using different odor-filter cartridges. Using the olfactomerter in conjuction with a weather tracker and range finder allows for a more detailed odor-monitoring history to be established for the different land application sites.

SECTION 7: CONTACT INFORMATION

If you have comments on this report or any other biosolids related items please call:

Village Creek Water Reclamation Facility	**817.392.4960**
Biosolids EMS Manager	**817.392.4965**

To find out more information about the City of Fort Worth Biosolids Beneficial Reuse/Recycling program and the EMS visit our website:
http://fortworthtexas.gov/water/info/default.aspx?id=6094&ekmensel=73b29971_1308_2386_6094_2

To find out more information on biosolids in general, biosolids facts, regulation requirements, and about the national Biosolids Partnership EMS program, visit the website: http://www.biosolids.org

APPENDIX A: CORRECTIVE ACTION NOTICES 2012-2013

CORRECTIVE ACTION NOTICES 2012-2013					
CAN #	**Date**	**Non-Conformance Issue**	**Scheduled Completion Date**	**Actual Completion Date**	**Close-Out Date**
2012-03	09/19/2012	***Minor Non-Conformance***: Pre-Interim Audit was not conducted according to EMS Planning Schedule; it was to be conducted on July 31st , but was not conducted until August 3rd.	09/21/2012	09/21/2012	09/25/2012
2012-04	09/19/2012	***Opportunity for Improvement***: Due to an increase in odor complaints, an evaluation of the number and type of complaints was conducted in order to understand common issues underlying the complaints and to find possible solutions.	10/11/2012	09/25/201	09/25/2012
2012-05	11/02/2012	***Requirement 10.1***: The treatment plant has not completely developed and implemented standard operating procedures, work management practices, or other appropriate methods at all critical control points throughout the biosolids value chain, to effectively manage potential environmental impacts.	10/18/2013 *sludge SOP's* 12/31/2015 *other SOP's*	10/1/2013 *sludge SOP's* pending *other SOP's*	pending
2012-06	11/02/2012	***Requirement 3.3***: The list of critical control points identified in the EMS Master Table of Critical Control Points-EMS Element 3.0 does not accurately reflect all of the currently functioning critical control points.	01/31/2013	08/05/2013	08/23/2013
2012-07	11/02/2012	***Requirement 3.4***: There is not a solid link between each critical control point with its corresponding operational controls.	01/31/2013	08/05/2013	08/23/2013
2012-08	11/02/2012	***Requirement 10.1:*** Within Operational Control of Critical Control Points – EMS Element 10.0, it states that the EMS management team shall review the operational control procedures regularly during EMS internal audits and work with mangers to revise them. Additionally, the SOP for creation of SOPs requires an annual review of SOPs. The most recent review and update of SOPs is 2005.	365 days for review of SOP creation/ review procedures; 01/31/2013 for updating Element 17	10/01/2013 for review of SOP creation/ review procedures; 08/05/2013 for update to Element 17.0	10/10/2013
2012-09	11/02/2012	***Requirement 10.1:*** The SOP Master Table of Contents and the various binders identified as SOP Manuals are not totally consistent one with another, there are several SOPs that are no longer in effect, and others are missing or not actually operating procedures.	10/18/2013	07/19/2013	10/10/2013

CORRECTIVE ACTION NOTICES 2012-2013 (CONT.)

CAN #	Date	Non-Conformance Issue	Scheduled Completion Date	Actual Completion Date	Close-Out Date
2012-10	11/02/2012	***Opportunity for Improvement***: The term "sludge" appears in certain elements with the EMS Manual-consider deleting if not used appropriately.	01/31/2013	08/05/2013	08/23/2013
2012-11	11/02/2012	***Opportunity for Improvement***: The 17 elements in the EMS Manual do not currently have a list of cross-referenced elements in the reference sections-consider including.	01/31/2013	08/05/2013	08/23/2013
2012-12	11/02/2012	***Opportunity for Improvement***: Element 4 does not currently have a designated time frame for updates and revisions to the legal table-consider including in the procedures.	01/31/2013	08/05/2013	08/23/2013
2012-13	11/02/2012	***Opportunity for Improvement***: Consider converting all power savings into dollars saved for the current goals and objectives; estimate dollars saved through attainment of each of the other goals and objectives.	01/31/2013	08/05/2013	08/23/2013
2012-14	11/02/2012	***Opportunity for Improvement***: Consider expanding the number and diversity of the individuals to be notified about the organization's intent to receive an independent third party audit.	01/31/2013	08/05/2013	08/23/2013
2012-15	11/02/2012	***Opportunity for Improvement***: Consider increasing the importance of training new employees on the Renda written standard operating procedures.	11/16/2013	11/16/2012	08/23/2013
2012-16	11/02/2012	***Opportunity for Improvement***: Element 15 currently states to summarize cost savings of producing quality biosolids. It does not state to summarize dollars saved by accomplishing other goals and objectives (if applicable).	01/31/2013	08/05/2013	08/23/2013
2012-17	11/02/2012	***Opportunity for Improvement***: Consider including a review of the level of implementation of the "Code of Good Practice" in the internal audits.	01/31/2013	08/05/2013	08/23/2013
2012-18	11/02/2012	***Opportunity for Improvement***: Consider updating the proposed yearly interim and verification audit schedule to reflect that not more than one interim audit in succession is conducted through substituting an internal audit for the interim audit in years nine and ten.	01/31/2013	08/05/2013	08/30/2013

CORRECTIVE ACTION NOTICES 2012-2013 (CONT.)

CAN #	Date	Non-Conformance Issue	Scheduled Completion Date	Actual Completion Date	Close-Out Date
2013-01	01/17/2013	***Requirement 7.3***: Due to manpower constraints, several functions associated with Fort Worth's Biosolids EMS Program are not being properly implemented.	02/28/2013	05/03/2013	06/17/2013
2013-02	05/23/2013	***Requirement 10.1:*** Develop and implement standard operating procedures, work management practices or other appropriate methods at all critical control points throughout the biosolids value chain to effectively manage potential environmental impacts. On May 13, 2013 TCEQ issued a Notice of Enforcement to Renda Environmental for nuisance odors associated with land application activities.	12/31/2013 *see odor related goals and objectives for progress	Pending	Pending
2013-03	05/06/2013	***Requirement 10.1***: On May 13, 2013, TQEQ issued a Notice of Violation to Renda Environmental for tracking material onto a public roadway in Wise County. Renda Environmental cleaned the roadway as required by the TCEQ inspector.	05/06/2013	05/06/2013	06/27/2013

APPENDIX B: GOALS AND OBJECTIVES

GOAL: Implementation of New Turbine Waste Heat Recovery System					
Objective	**Milestone**	**Responsible Party**	**Targeted Completion Date**	**Status**	**Key Outcomes**
1. Design/Planning	Complete	Ana Peña-Sr Professional Engineer, Gary LaGassey-Asst Water Sys Supt (Operations)	31 Aug 2011	Complete	Environmental Performance Improve Biosolids Management Practices
2. Obtaining Building Permits	Complete	Jerry Pressley-Water Systems Superintendent	31 Aug 2011	Complete	
3. Equipment Procurement	Complete	Ana Peña-Sr Professional Engineer	08 Jun 2012	Complete	
4. Construction	Complete	Ana Peña-Sr Professional Engineer	08 Jun 2012	Complete	
5. Testing	Complete/not complete	Ana Peña-Sr Professional Engineer	31 Oct 2013	Active	
Final cost savings associated with this goal will be a decrease of 13,159,439 kWh/yr of purchased power; which is a cost savings of $940,110.30 (based on September 2013 data). ***Average run time for steam blowers is 98.79 %; average output is 81.67% (based on September 2013 data).***					

GOAL: Conduct Grit Control Study					
Objective	**Milestone**	**Responsible Party**	**Targeted Completion Date**	**Status**	**Key Outcomes**
1. Award Contract for study	Complete	Ana Peña-Sr Professional Engineer	15 May 2012	Complete	Environmental Performance Regulatory Compliance Improve Biosolids Management Practices
2. Data Acquisition	Complete	Ana Peña-Sr Professional Engineer	30 May 2013	Complete	
3. Analyze data and compile report	Complete/not complete	Ana Peña-Sr Professional Engineer	31 Jun 2014	Active	

GOAL: Create a Biosolids Master Plan					
Objective	**Milestone**	**Responsible Party**	**Targeted Completion Date**	**Status**	**Key Outcomes**
1. Award Contract for project	Complete	Steven L. Nutter-Biosolids EMS Manager	30 Apr 2012	Complete	Environmental Performance Improve Biosolids Management Practices Regulatory Compliance
2. Workshop 1(Kickoff)	Complete	Steven L. Nutter-Biosolids EMS Manager	07 Jun 2013	Complete	
3. Submit formal data request	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	21 Jun 2013	Complete	
4. TMs 1 and2 Draft (Regulatory & Data)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	26 Jul 2013	Complete (24 Sep 2013)	
5. Workshop 2(Criteria & Long List Selection)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	26 Aug 2013	Active (25 Sep 2013)	
6. TM3 Draft (Model and short-term)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	23 Sep 2013	Not complete	
7. Workshop 3(Screen Alternatives)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	19 Nov 2013	Not complete	
8. TM 4 Draft (Market Analysis)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	20 Dec 2013	Not complete	
9. TM 5 Draft (Detailed Analysis)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	29 Jan 2014	Not complete	
10. Workshop 4 (Detailed Analysis)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	13 Feb 2014	Not complete	
11. TM 6 Draft (Long Term Plan)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	28 Mar 2014	Not complete	
12. Workshop 5(Long Term Plant)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	14 Apr 2014	Not complete	
13. Draft Master Plan Report	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	9 Jun 2014	Not complete	
14. Final Master Plan Report	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	14 Jul 2014	Not complete	
15. Contract Review Workshop	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	14 Mar 2014	Not complete	
16. TM & Draft (Contract Review)	Complete/not complete	Steven L. Nutter-Biosolids EMS Manager	28 Apr 2014	Not complete	

GOAL: Pilot Project – Aeration of Holding Tank 1 to Reduce Odors Associated with Biosolids Land Application					
Objective	**Milestone**	**Responsible Party**	**Targeted Completion Date**	**Status**	**Key Outcomes**
1. Hire consultant	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	14 Jun 2013	Complete	Environmental Performance Improve Biosolids Management Practices Regulatory Compliance
2. Consultant - Evaluate aerators & design system	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	21 Jun, 2013	Complete	
3. Purchase aerator	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	28 Jun 2013	Complete (21 Jun 2013)	
4. Clean grit out of Storage Tank 1 if needed.	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	26 Jul 2013	Complete (3 Sep 2013)	
5. Installation of aeration system	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	9 Aug 2013	Complete (12 Sep 2013)	
6. Evaluate Effectiveness in the field through odor monitoring	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	28 Feb 2014	Not complete	

GOAL: Study to Evaluate Biosolids Odors Associated With High Strength Wastes.					
Objective	**Milestone**	**Responsible Party**	**Targeted Completion Date**	**Status**	**Key Outcomes**
1. Hire consultant	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	5 Jul 2013	Complete	Environmental Performance Improve Biosolids Management Practices Regulatory Compliance
2. Consultant – Develop scope of work and sampling plan	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	31 Jul 2013	Complete (30 Jul 2013)	
3. Perform sampling and analysis	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	31 Oct 2013	Active	
4. Consultant- Produce technical report summarizing issues found during study	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	22 Nov 2013	Not complete	

GOAL: Assess Effectiveness of BIOGLOX on Biosolids Odors					
Objective	**Milestone**	**Responsible Party**	**Targeted Completion Date**	**Status**	**Key Outcomes**
1. Meet with Bioglox representatives for product overview	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	17 Aug 2013	Complete (17 Aug 2013)	Environmental Performance Improve Biosolids Management Practices Regulatory Compliance
2. Bioglox-conduct bench study using Village Creek sludge and Bioglox	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	17 Sep 2013	Complete (17 Sep 2013)	
3. Discuss potential pilot study at dewatering facility	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	17 Sep 2013	Complete (17 Sep 2013)	
4. Design for pilot project	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	4 Oct 2013	Not Complete	
5. Installation	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	25 Oct 2013	Not Complete	
6. Evaluate effectiveness	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	31 Jan 2014	Not Complete	

GOAL: Increase Biosolids Outreach Activities in Response to Public Concerns					
Objective	**Milestone**	**Responsible Party**	**Targeted Completion Date**	**Status**	**Key Outcomes**
1. Identify four (4) public/third party concerns related to the biosolids value chain	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	25 Sep 2014	Active	Improved Public Relations
1.a - For each concern, either contact three (3) external agencies or conduct presentation with one (1) external agency.	Complete/not complete	Steven L. Nutter – Biosolids EMS Manager	8 Nov 2013	No Complete (Tour/presentation scheduled for various public officials.)	